ing the suffix *ose*." This being the case, it seems a little unfortunate that the termination "ide" for the generic names of the groups should have crept into our system of nomenclature. It is equally unfortunate that our present system recognises no means of distinguishing rotatory sense and configuration, and an official revision of both is urgently needed.

In conclusion, a word must be added in praise of the excellent bibliography at the end of the volume, the usefulness of which would be greatly enhanced if the references were numbered to correspond to those in the text. Under the present arrangement, reference to the source of information necessitates a reference to the chapter, then to a long list of names, and, finally, to the contents of a whole volume or series of volumes and original papers. J. B. C.

A PROSPECTOR'S HANDBOOK OF MINERALS.

The Recognition of Minerals. Being a Collection of Notes and Simple Tests for the Use of Travellers and Prospectors. By C. G. Moor. With Monographs on Geology, Ore Deposits, &c., by Donald A. MacAlister. Pp. vii+231. (London: The *Mining Journal*, n.d.) Price 7*s*. 6*d*. net.

THE old days of prospecting, when scanty equipment and slender knowledge, if backed by sufficient perseverance, were all that was requisite, have gone never to return. The insatiable demands of present-day life for purposes both of peace and war —may be for a filament for an electric lamp of improved efficiency, or a new alloy to impart exceptional hardness to steel—have enormously increased the range of mineral substances which a successful prospector must bring within his purview. In fact, it is necessary for him to have at hand more knowledge than can be conveniently or accurately assimilated by the memory, and he is compelled either to prepare for himself a series of notes or to put in his pocket a book such as that which Mr. Moor has prepared. Himself a traveller, Mr. Moor writes with the understanding of one who knows what exactly is the information required, and many of the sections, for instance, those dealing with the subjects of "panning" and "vanning," contain much detail of great practical value which may save the novice much time, trouble, and annoyance. To give that basis of theoretical knowledge which makes the radical difference between an intelligent understanding of the principles of the methods and merely blind rule-of-thumb working, several important monographs by Mr. MacAlister have been incorporated in the book. He has followed the customary treatment of the subjects, and discusses them in sufficient fulness for the purpose in view.

In the recognition of minerals, which, as the title tells us, forms the main subject of the book, reliance is placed upon the colour as an initial criterion. It is, as Mr. Moor points out, far from a constant character of most species, and, moreover, suffers from the disadvantage that the terms in which it is expressed are wanting in precision, and that the appreciation of delicate differences varies considerably with the individual. On the other hand, it is the most obvious of the physical characters, and suffices for a preliminary separation. The range is subsequently narrowed by the crystalline form, if any, and by determinations of the hardness and the specific gravity, until the identity of the mineral is established; the conclusion may be confirmed by the application of a few simple blowpipe and other chemical tests which are possible with a prospector's outfit. A full description of each mineral is given under the colour which most commonly characterises it, but cross-references are added under the less usual colours. The data that are given for each species include the hardness and the specific gravity, the ordinary chemical reactions, the localities where it has been found in workable quantity, and its commercial value. At the end of this section useful lists are added of minerals soluble in water, hydrochloric acid, and aqua regia, and of minerals which are unaffected by these liquids.

The section that follows on the metallic and nonmetallic elements is particularly useful, because this information is not contained in a text-book on mineralogy. Under each element is given a list of the principal minerals in which it occurs, their physical and chemical characters, and particulars of its commercial use and value. Other sections deal with the important subjects of the working of the lodes and the extraction of the metal desired; a special section in the appendix is devoted to the extraction of gold. Mr. Moor mentions the precious stones, but gives few details, and refers the reader to two works the scope and nature of which he describes in the appendix. Of these one is quite satisfactory, though costly and too large for a traveller to carry about; but the other is full of mistakes in facts and principles, and is likely to prove a broken reed; it is strange that Mr. Moor should so strongly recommend it.

The book originally appeared in parts in the columns of the *Mining Journal*, and this fact may, perhaps, account for the eccentric pagination, the first page coming in the middle of the introduction, and for the division into sections and not into well separated chapters. The text is printed on the right-hand page only, the other being left blank, presumably for the addition of notes; interleaving would have been a neater and equally effective method. The index is fairly complete, but why should an irrelevant advertisement have been sandwiched between it and the text?

ELECTRIC DISCHARGES THROUGH GASES.

Conduction of Electricity through Gases and Radio-activity—a Text-book with Experiments. By Dr. R. K. McClung. Pp. xvi+245. (Philadelphia: P. Blakiston's Son and Co., 1909.) Price 1.50 dollars net.

THOSE teachers of physics who are considering the desirability and practicability of introducing into their more advanced courses of laboratory work some experiments on the discharge of electricity through gases and on the phenomena of radio-activity will find this book a useful guide. Believing that our

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knowledge of the fundamental facts has now become sufficiently definite to justify the step, Dr. McClung has arranged a series of experiments designed to give a practical knowledge of the methods employed and the results obtained in these newer developments of electrical science. The description of the book as a text-book with experiments indicates the plan on which it is written. A connected account of the subjects considered is given from an experimental point of view, with descriptions and diagrams of suitable apparatus by means of which students may perform the experiments and test the results stated, without unnecessary complications. Thus the book provides a convenient summary of the results of recent researches, and is not a volume for the laboratory only.

The book is divided into two parts; chapters i.–vii. deal with electric discharges through gases, and chapters viii.–xvi. with radio-activity. In part i. accounts of kathode and Röntgen rays and a sketch of the ionisation theory are given, while descriptions of a few experiments on ionisation by ultra-violet light and by incandescent solids are added. We commend to the notice of those beginning research in this department the valuable chapter on the apparatus and instruments used in the investigations. The practical hints on the manipulation of electrometers and electroscopes, given by an experienced worker, cannot fail to be helpful. In part ii. experiments on the radiations and emanations from radio-active substances, on induced activity, and on the radio-activity of the atmosphere are described, and a sketch of the disintegration theory is added. A list of 125 experiments is given at the beginning of the book; the author suggests that the more difficult experiments, of which twenty are indicated, may be reserved by the student for a later stage.

We think that students contemplating research in these branches of physics would find the course a valuable preparation for their work. From the nature of the experiments, however, it will be evident that most of them could be undertaken profitably only by those who, as a result of their previous experience of practical work in electricity, have acquired considerable skill in manipulation; for it would be useless to set a student who was unable to manage a galvanometer to struggle with the difficulties of an electrometer. To set up the apparatus and perform the whole of the experiments would require a considerable time; but a student who worked through even a small number of experiments selected from the list would gain a valuable insight into the methods of investigation in use in this part of the subject. The provision, *for purposes of instruction*, of the apparatus which is necessary would, we fear, form a difficulty in some physical laboratories, and, paradoxical as it may seem, not least in those in which researches dealing with the subjects of the book are in full progress.

A few of the definitions in the theoretical sections require more careful statement, and the remarks on the law of decay at the end of chapter xii. need revision. The book is also capable of considerable improvement in literary style.

TWO BIOLOGICAL TREATISES.

(1) *Die Selektionstheorie.* Eine Untersuchung von August Weismann. Pp. vi+69. (Jena: Gustav Fischer, 1909.) Price 2 marks.

(2) *Experimentelle Studien zur Soma- und Geschlechts-Differenzierung.* Erster Beitrag. Von Prof. Johannes Meisenheimer. Pp. vii+149. (Jena: Gustav Fischer, 1909.) Price 6.50 marks.

(1) AMONG the most welcome effects of the Darwin commemoration held last year at Cambridge has been the reappearance of Prof. Weismann in the lists as a champion of the doctrine of natural selection, a cause which for the last fifty years he has never ceased to defend with the whole weight of his authority and learning. But for the invitation from Cambridge to contribute to the memorial volume published on that occasion, the veteran professor, as he informs us in the preface to his "Selektionstheorie," would scarcely have undertaken to add anything to his former writings on the subject. Now, however, he has not only enriched the Cambridge "Festschrift" with the English essay in which his views are so admirably stated, but he has published the same treatise in German, substantially unaltered, but with the addition of certain passages in which his conclusions on the subject of the reality of the selection-process are driven home with fresh force and cogency.

In this production Weismann's dialectical ability and literary skill shine out as conspicuously as ever; and it would be difficult to find, within the same compass, an equally convincing presentment of the case for Darwin's conception of the action of natural selection in the formation of species, or one more aptly illustrated by examples drawn from many departments of organic nature. While so much continues to be written which tends to overcloud and confuse the simplicity of the Darwinian position, it is refreshing to see how Weismann goes straight to the point, brushing aside those objections that proceed from imperfect appreciation of the facts to be explained, and quietly putting in their proper place, as subordinate to the selection-theory, certain well-attested phenomena which have in some quarters been supposed to be hostile to Darwinian interpretations. All this is done with the utmost candour and courtesy, and without the least trace of arrogance or contempt for adverse opinion. In full agreement with both Darwin and Wallace, Weismann here holds, as he has always done, that adaptation is a universal principle in the world of life, and that of this principle selection affords the one and only possible explanation. After reading the masterly defence of the position to be found on pp. 48–69 of the present treatise, those younger biologists who may have allowed themselves to be troubled with doubts as to whether, after all, the theory of adaptation by selection has not been overdone may well take fresh courage and renew their confidence in Darwin's solution of the teleological problem.

Sexual selection, to which Darwin attached much importance, has been vigorously attacked from many

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